

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	5805	23	71-5805	USA/5805/B( )	1	OF 3

## 2. PREAMBLE

a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."

b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

## 3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. ISSUED TO (*Name and Address*)

Duratek  
140 Stoneridge Drive  
Columbia, SC 29210

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

Chem-Nuclear Systems, Inc., application dated  
February 25, 1994.

## 4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

## 5.

## (a) Packaging

(1) Model No.: CNS 3-55

## (2) Description

The package is a steel-encased, lead-shielded cask with crushable impact limiters. The basic cask is a steel cylinder 133-3/4 inches long by 50-1/2 inches in diameter with maximum cavity dimensions of 36 inches in diameter by 116 inches long reduced to 111 inches by the shield ring attached to the lid cover. Shielding is provided by 6 inches of chemical lead in the sides and closure base plate and 5-1/4 inches in the closed end.

The outside steel encasement is made up of two, 1/2-inch plates on the sides and three plates totaling 2-5/8 inches on the end. The containment vessel is a 1/4-inch thick cylinder with a 1/2-inch end plate. The shells are welded together with the lead shielding poured to fill the annular and end spaces.

The removable, flanged and recessed base plate weldment consists of 3/8-inch and 1-1/4-inch outside plates and a 5/8-inch inside plate. The space between the plates is lead-filled.

The base plate is secured to the cask body by means of twelve, 1-1/2-inch high strength bolts and nuts and sealed with two silicone O-rings.

The cavity is penetrated by a vent line at the closed end and a drain line through the base plate. The vent line is sealed by a gasketed and shielded plug. The drain line is sealed with a 25 psig relief valve.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	5805	23	71-5805	USA/5805/B( )	2	OF 3

5.(a)(2) Description (continued)

Cask appendages include two, 8-inch lifting trunnions and two, 4-inch removable tilting trunnions on the cask side.

Removable impact limiters are provided at the cask ends and at the two, 8-inch trunnions. The former consist of a series of 6-inch diameter closed end tubes. Each impact limiter has tubes approximately 6 inches long around the end periphery. The closure end impact limiter has 12 tubes, six about 6 inches long and six about 2 inches long, around the sides. The closed end impact limiter has six tubes about 6-inches long around the sides. A gusseted tube acts as the trunnion impact limiter.

The cask is secured horizontally to a skid which is mounted to the transport vehicle for shipment. An optional sunshade is provided.

The gross weight of the package, excluding the skid and sunshade is approximately 70,000 pounds. The skid weighs about 4,200 pounds.

(3) Drawings

The packaging is constructed in accordance with Chem-Nuclear Systems, Inc., Drawing Nos.: MOD 100, Rev. 14; C-111-D-0001, Rev. 0; and C-111-E-0002, Rev. 2; and ATCOR Drawing Nos.: MOD 139-1, Rev. K; MOD 140, Rev. C; MOD 124, Rev. 5; 0999-D-07, Rev. 8; and 0999-C-08, Rev. 9. An optional sunshade is constructed in accordance with Chem-Nuclear Systems, Inc., Drawing No. C-110-D-5001, Rev. 1.

(b) Contents

(1) Type and form of material

Depleted Antimony-Beryllium (Sb-Be) neutron sources and irradiated metal components packaged in secondary containers.

(2) Maximum quantity of material per package

Package internal decay heat load not to exceed 250 watts. The source strength of depleted neutron sources not to exceed 2.3 curies of Antimony-124.

6. (a) Both the inner cask cavity and the secondary container must be free of water when the package is delivered to a carrier for transport.

(b) Except for close fitting items, shoring must be placed between contents, secondary container and cask cavity to minimize secondary impacts due to accident sequence.

(c) The maximum gross weight of the contents, secondary container and shoring is limited to 9,220 pounds.

**CERTIFICATE OF COMPLIANCE  
FOR RADIOACTIVE MATERIAL PACKAGES**

1.	a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE	PAGES
	5805	23	71-5805	USA/5805/B( )	3	OF 3

7. Prior to each shipment, the silicone O-ring seals (base plate and vent plug) must be inspected, the seals must be replaced with new seals if inspection shows any defects or every six (6) months, whichever occurs first.
8. Prior to delivery of the package to a carrier for transport, the package containment cavity shall be leak tested. The sensitivity of the test shall be at least  $1 \times 10^{-1}$  atm-cm<sup>3</sup>/sec (STP). In addition, the packaging containment cavity shall be leak tested at least once every twelve (12) months. The sensitivity of the test shall be at least  $1 \times 10^{-3}$  atm-cm<sup>3</sup>/sec (STP).
9. The package shall be prepared for shipment and operated in accordance with the Operating Procedures of Section 7.0 of the application.
10. Each packaging must meet the Acceptance Tests and Maintenance Program of Section 8.0 of the application.
11. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17. Fabrication of additional packagings after December 31, 1983, is not authorized.
12. Expiration date: October 1, 2008. This package is not renewable.

REFERENCES

Chem-Nuclear Systems, Inc. application dated February 25, 1994.

Supplements dated: February 16, 1999, December 5, 2000, January 23, February 2, March 2, April 23, 2001, October 3, 2002, and January 14, 2004.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

John D. Monninger, Chief  
Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Date: March 11, 2005.